# W5YI

Nation's Oldest Ham Radio Newsletter
REPORT

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# Amateur Repeater Coordinators Meet in Mid-West

The Repeater Coordinator's meeting that was called by the American Radio Relay League was held in St. Charles, Missouri (near St. Louis) at the Noah's Ark, a Best Western Hotel on Saturday, October 7th. The meeting started at 8:00 in the morning and lasted to just past 5:00 p.m. in the afternoon.

The more than 70 people that attended the meeting represented about sixty percent of the state and multi-state repeater coordinating organizations located throughout the United States. Some states (such as California and Pennsylvania) were under-represented or not represented at all. And several coordinators were unable to attend due to health and financial reasons.

Not all who attended the meeting were repeater coordinators, however. Some represented other interests ...such as ATV and packet. The meeting hall and refreshment expenses were funded by the ARRL - as were the air fare and hotel accommodations for FCC's, Ralph Haller, N4RH

The meeting was chaired by ARRL Rocky Mountain Director, Marshall Quiat AGØX of Denver, Colorado. According to the ARRL, the ultimate goal of the mass meeting of coordinators was to provide the FCC with a single point of contact (SPOC) for all amateur repeater systems operating throughout the United States.

### Background of the meeting

The meeting got its start this past Spring

when the ARRL's Board of Directors invited the Frequency Coordinating Community to attend an open meeting in St. Louis on Saturday, June 10th. The meeting date was later changed to October 7th when several coordinators complained about the short notice. The League said it felt that the meeting would be an initial step on a path that ultimately would lead to greater FCC support for local coordinators.

The League said it remained committed to local and regional coordination both in principle and in practice. It stressed that the FCC rules governing amateur frequency coordination dated back to 1986 and questioned whether they provided sufficient recognition of coordinators by the FCC.

The League added, "The current rules only address coordination as a means of resolving interference from one repeater to another ...but coordinators frequently are called upon to address other kinds of amateur-to-amateur interference."

"Finally, the rules do not provide a means for resolving the concerns of amateurs who are dissatisfied with the coordination process in their area. Ideally, these concerns should be addressed within the coordinating body itself, but there are no standards for doing so." The letter was written by 1st VP Rodney J. Stafford, KB6ZV, now ARRL President.

"The specific objectives of the meeting are as

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follows," Stafford said in the April 25th letter.

- "(A.) To respond to an FCC request that it be provided with a single point of contact (SPOC) with the coordination community, through which the FCC would recognize and support local and regional coordinators.
- (B.) To determine whether coordinators would support a return to repeater licensing, subject to the applicant's acceptance of coordination recommendations and with provisions for temporary or trial operation.
- (C.) To determine the extent to which coordinators should coordinate emitters other than repeaters, and whether coordinators should attempt to resolve interference between repeaters and other kinds of amateur stations.
- (D.) To develop a procedure for bringing to the FCC for action, coordination issues that cannot be otherwise be resolved.
- (E.) To decide how to develop standards for service by coordinators.
- (F.) To decide how appeals of local coordinators' decisions should be handled.
- (G.) To develop a process for the recognition and orderly succession of coordinators.
- (H.) To decide how the coordinating community should respond to the introduction of new techniques."

To accomplish these objectives the Board named a group of Directors to the ARRL Ad Hoc Repeater Coordination Committee with Marshall Quiat, AGØX named chairman.

The League said they wanted "...to see that the FCC's request for a single point of contact is met."

The advantage of a SPOC, is that it is far more efficient for the FCC to deal with a single organization rather than a myriad of individual coordinators and coordinating groups. Both repeater coordinators and the FCC would funnel all correspondence and inquiries through the SPOC.

The ARRL Committee is called Ad Hoc because it is not a standing committee of the League and has been formed for a specific purpose and a limited life. Now that the meeting is over the Committee goes out of business unless there is some follow-on work that needs to be done.

### Presentation by FCC

After a welcome message from ARRL President Stafford, Ralph Haller, N4RH, Deputy Chief, Wireless Telecommunications Bureau, FCC, Washington, D.C. addressed the group. In short, the FCC does not think the frequency coordination process is broke. It is cur-

rently working.

But Haller is not comfortable that there is no official recognition of coordinators. He would like to provide a mechanism that recognizes coordinators. He envisioned an umbrella organization for coordinators providing a single point of contact (SPOC.) This organization would keep track of coordinators and be a point of review of coordination problems. This organization would put together a manual of proper coordination procedures.

There was also a discussion about the merits of reinstating repeater licensing and the assigning of KR/WR prefixed call signs. Mr. Haller said he considered this a win-win situation. He has wanted to reinstate repeater call signs for years but didn't have the resources. Now they have the electronic means to do it. He said the only way to make these changes was for them to get more efficient and one way for them to do that is with our help. The Commission would become final arbiter in disputes.

Haller asked that coordinators try to stay focused. "This meeting is an opportunity to take coordination to a higher plateau. It's a truly historic day in the history of amateur radio, but ...this isn't an FCC meeting, it's the coordinator's meeting."

Question: George R "Dick" Isely, WD9GIG (MACC President) asks if the FCC is willing and able to provide enforcement backup? And what about the FCC s budget problems?

Answer: Last year the FCC was funded to \$186 million, this year \$165 million. Ninety percent of the Commission's budget is salaries. They will probably have to cut more people. There is an early retirement program with cash incentives. Eighty-five people in the field organization are retiring out of about 350. A number of field offices is being closed, so it will be harder for field personnel to work cases. It will be up to the coordinators to develop a program that will gather needed data. The FCC is willing to impose sanctions after they obtain the information from the SPOC.

Question: Owen Wormser, K6LEW (T-MARC) had a question about licensing and enforcement of the rules. Answer: Licensing of repeaters with WR/KR repeater call signs is not difficult. In an interference situation, the station assigned a WR/KR call sign will get preference over stations not recognized with a WR/KR call sign. Licensing will eliminate guerilla repeaters. But we must be careful that we don't lock out legitimate coordinators. The coordination community must come up with a mechanism. The FCC said they would be open to a "white paper" proposal ...then a rule making later.

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Question: Bill Wells, WA8HSU (Chairman, Indiana Repeater Council) believes that frequency coordinators were already recognized. And if there were additional rules and responsibility, would the FCC protect the coordinators law suits.

Answer: Ralph talked about other frequency coordination groups in other services. The local coordinator makes a decision as does the umbrella organization. If the problem can not be resolved, then it goes to the FCC.

Question: Gary Hendrickson, W3DTN (T-MARC) - What happens if a license is issued for the repeater and the coordination is cancelled?

**Answer:** If you operate outside the parameters of the license, then the license is void. The FCC would be willing to cancel the repeater license ...but it is not easy.

Question: Jim Fonte, KK9T (Indiana Repeater Council) In the case of a monetary forfeiture - sometimes the fine is plea bargained down. Can the FCC discontinue this practice?

Answer: The forfeiture authority the Communications Act gives the FCC, allows for negotiation. Haller said he couldn't say that fines would not be reduced, but there would be a reluctance to reduce them so low they become meaningless.

Question: Dave Barrow, N9UNR (Wisconsin Assn/-Rptrs) is concerned with liability. If the repeater licensing becomes mandatory, then our liability becomes much greater. Can we get an exemption similar to those of the Official Observer Corps.

**Answer:** Haller said it would require Congressional legislation to do this. FCC does not have the power to grant exemptions.

Ralph talked about the SPOC model that is used in Private Land Mobile Service. All coordinations are completed by local coordinators. But the interface with the FCC is through APCO. They want a single group to obtain needed data. Haller had no guidance about what this group should look like or even if that is what is needed. But they want to deal with one group and not each and every coordination body. The FCC simply does not have the resources to talk to everyone.

Question: James T. Fortney, K6IYK (220SMA) asked about the SPOC for commercial repeaters.

Answer: Haller said the organization must be representative of the end users. Generally the coordinator became the trade association for that industry. Very few guide lines. Process first in, first out, not discriminatory, must be representative of the users. Applications must be processed in 20 days. But he is not looking for anything that formal. Is there something

in-between that makes sense?

Question: Paul Gilbert, KE5ZW (Texas VHF-FM Society) is there way to use the already existing VEC program to do the licensing part of this question?

Answer: We are not at the point of looking at the mechanics. But that can be looked at.

There was agreement in principal that the FCC adjudicate the final decision. The SPOC would make a recommendation to the Commission. The FCC in most cases would support the SPOC handling.

Question: Jim Fonte KK9T (Indiana Repeater Council)
"For Mr. Haller ...do you have a date in mind when you would like to see the collective work of this group come to you with our proposals, and do you have a date in mind when you would like to start this vehicle?"

Answer: "Let me retrace my steps. It's NOT what I want. I'm NOT soliciting anything. This is your meeting. I don't want anything necessarily. Don't try to please me. I don't have a timetable and I don't need to be pleased. Well, when you say. 'What is acceptable?,' I have no answer. It's whatever you want to do. And the other thing where I get very nervous is when I start talking about change to the rules. That's a point when I'm going to feel obligated to simply leave the room."

Question: Steve Wilson, WB9SHY (Vice Chairman, Indiana Repeater Council) "Did the FCC, yes or no, request the single point of contact (SPOC) discussion for the Coordinators' Meeting?

Answer: (from Mr. Haller) "No. We did not request it."

For the afternoon session, the chair was yielded to Dick Isely, WD9GIG, President of MACC. The topic of discussion then turned to the FCC request and who should be the SPOC?" There were complaints that Roberts Rules of Order were not followed. In an attempt to reach a consensus, three SPOC options A, B & C were offered.

Initially a plan was developed that would allow voting by state and multi-state organizations. That didn't happen. Instead each person in the room cast one vote regardless of their affiliation. This caused much criticism since some people represented many states and hundreds (and in some cases, thousands) of repeaters. Some vastly smaller repeater groups had four or five people at the meeting and therefore had five votes.

There were three single point of contact possibilities under consideration. They were:

- (a) ARRL as the SPOC
- (b) Organize the SPOC as a stand-alone umbrella organization
- (c) Set up an independent SPOC organization with

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ARRL affiliation but not controlled by the League such as now is the case with AMSAT, TAPR, VECs, and others. The first vote was: (a) 34, (b) 0 and (c) 24.

In an attempt to obtain a larger consensus, Dick asked who were opposed to the ARRL being the SPOC. Only two votes against this result were cast. A vote asking who would be opposed to option "c" was suppressed.

One of the coordinating organizations in attendance insisted that the original vote be taken again. When it was, the second vote on the three options was: (a) 38, (b) 0 and (c) 23.

It was finally decided that a panel of five people would put together the skeleton framework for the SPOC for presentation to the FCC. At this point, it is assumed they will recommend that the ARRL become the SPOC since they obtained the most votes. The proposal would still require acceptance by the ARRL Board of Directors. The "white paper" will be developed by:

Owen Wormser,	K6LEW	T-MARC
Bill Kelsey,	WA6FVC	SCRRBA
Whit Brown,	WBØCJX	MACC/CO
Dick Isely,	WD9GIG	MACC
Jim Fortney.	K6IYK	220/SMA

There was consensus on only two things at the meeting.

- That the coordinators want the FCC to enforce the rules.
- That the coordinators want the FCC to recognize who they are.

Even though many of those in attendance believed that the ARRL should indeed be the SPOC, at least two large coordinating organizations (Indiana Repeater Council and the SouthEastern Repeater Association) were vehemently against that proposal. After returning home from the meeting and polling their SERA's Board of Directors, Dave Shiplett AC4MU issued the following statement:

"To: Frequency Coordination Councils and

Coordinators

From: David Shiplett, AC4MU

President SouthEastern Repeater

Association (SERA)

Subject: ARRL's Proposed Single Point of Contact

(SPOC)

The Board of Directors of SouthEastern Repeater Association, Inc. [SERA] representing 2,073 repeaters in North Carolina, South Carolina, Virginia, West Virginia, Tennessee, Kentucky, Georgia and Mississippi

have voted unanimously not to participate in a Single Point of Contact between amateur repeater coordinators, the ARRL and the FCC. Mr. Haller stated that the FCC did not request a SPOC. We believe it to be in the best interests of our membership for SERA to maintain its own contacts with the Commission as we have in the past."

(Editor's note: The information for this story came from a multitude of sources. These include several people who attended the meeting and the "Coordinator's Remailer" ... a running forum on the Internet set up by Joe Jarrett, K5FOG of the Texas VHF Society. We had also asked ARRL's Marshall Quiat, AGØX to provide input which was promised. However, it had not arrived at deadline.)

### ADDITIONAL DIGITAL CODES PERMITTED ON HE

On October 11, the FCC released an order clarifying that amateur stations may use any digital code that has its technical characteristics publicly documented. The action is in response to a letter from ARRL technical guru, Paul Rinaldo, W4Rl to FCC's John B. Johnston, W3BE.

The ARRL said that some amateur operators have expressed concern about the legality of using the CLOVER, G-TOR and PacTOR codes on the high frequency (HF) amateur service bands. The current rules (Section 97.309(a) appears to authorize only the Baudot, AMTOR and ASCII modes on HF. At the VHF and higher frequencies, the rules authorize the use of any unspecified digital code provided the emission does not exceed a specified bandwidth.

The League stated in their letter that it has worked with the developers of CLOVER, G-TOR and Pac-TOR to document the technical characteristics and requested that the rules be amended to specifically authorize CLOVER, G-TOR and PacTOR to remove any doubt about the permissibility of their use.

The primary use of CLOVER, G-TOR, and Pac-TOR is to facilitate communications using alreadyauthorized digital codes, emission types, and frequency bands. The technical characteristics of CLOVER, G-TOR, and PacTOR have been documented publicly for use by amateur operators by the League and these modes are readily available in commercial products.

The FCC agreed that using these codes would not conflict with their objective of preventing the use of codes and ciphers intended to obscure the meaning of the communication. "We agree, therefore, that it would be helpful to the amateur service community for the rules to specifically authorize amateur stations to transmit messages and data using these and similar codes." FCC said. Section §97.309(a) now has a new paragraph 4 which authorizes use in the amateur service of publicly documented digital codes.

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### LAUNCH CONTRACT FOR PHASE 3-D FINALIZED

The final details surrounding the agreement for launch of the Phase 3-D International Amateur Radio Satellite were unveiled during a series of kick-off meetings held on September 28 and 29, 1995 at Arianespace Headquarters in Evry, France. Project leader Dr. Karl Meinzer, DJ4ZC, AMSAT-DL President announced on October 7 that all major contractual issues for the launch of the satellite by the European Space Agency (ESA) are now complete.

Dr. Meinzer led the negotiations with ESA on behalf of all AMSAT groups participating in the project. AMSAT-NA Executive VP Keith Baker, KB1SF and Dick Jansson, WD4FAB, VP Engineering attended the meetings in France.

In his announcement, Dr. Meinzer emphasized, "This event marks a major milestone in the Phase 3-D project as it establishes a firm cost, schedule and technical baseline for our launch. It is clear that the European Space Agency has again recognized the important contributions AMSAT has made to ESA's work over the years." Dr. Meinzer also highlighted the many provisions favorable to AMSAT in the recently negotiated launch contract when he stated that, "These conditions are all proof that the working relationship between AMSAT and ESA remains mutually beneficial."

The contract calls for a firm launch price of some 1.3 Million Deutsche Mark (DM), or about \$1 million US, and confirms that Phase 3-D's primary launch opportunity will be via the second test flight of ESA's new Ariane 5 booster (Ariane 502). However, if for some reason ESA determines launch via the Ariane 502 is not possible, the contract also calls on ESA to exercise their "best efforts" to orbit Phase 3-D on an Ariane 4 booster, no later than mid-1997. The Phase 3-D design team anticipated this eventuality and constructed both the Phase 3-D spaceframe and its carrying structure (SBS) to be easily compatible with both the new Ariane 5 vehicle as well as the venerable Ariane 4 booster. The launch, previously scheduled for April/May 1996, is now slated for September 1996.

While the final negotiated price for Phase 3-D launch is somewhat reduced from earlier estimates, the cost of the launch still represents a sizeable sum for an organization such as AMSAT. Fortunately, through the generous contributions of individuals and organizations from around the world, money is now "in hand" to pay the first installment (about \$800,000) of the launch bill.

AMSAT-NA President Bill Tynan, W3XO emphasized, however, that "We still need to raise another \$200,000 just to complete the satellite and prepare it for launch. We must continue our efforts to raise both the rest of the funds to complete Phase 3-D, as well as to get the spacecraft ready on time."

### AMATEUR LICENSING STATISTICS - TEN YEARS

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- (1.) There are an additional 2430 amateur radio club stations which are NOT included in the above.
- (2) The Technician figures for 1994 and 1995 are for both Tech and Tech Plus. The breakdown is:

Year	Technic.	Tech. Plus	Total
1994	117345	134028	251373
1995	145193	139529	284722

(3.) The number Tech's passing the 5-wpm code since the start of No-Code licensing is minimal (about 6%.) There were 129,386 Tech's w/code knowledge in Feb. 1991. Today there are 139,529. Bottom line: Most No-Code Techs do NOT learn Morse! Gain in "No Coder's" 145,193. Gain in "Code Techs": 10,143.

[Source: FCC Licensing Facility, Gettysburg, PA]

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983   395   574   4870   2708   2838   376   4574   4870   2708   2838   376   4574   4870   2708   2838   3847   2864   5923   2886   3655   3833   379   4570   4994   3856   3847   5864   5923   2886   3675   3745   3745   3785   3833   379   4570   4994   3856   3847   5864   5923   2886   3675   3775   3265   3783   379   4770   4994   3785   3785   3785   3785   3785   3785   3785   3785   3785   3883   379   4770   4994   3856   3865  
3865   3865</td><td>454         493         815         831         843         858         789         823         905         1091         547         538         483         483         483         483         483         483         483         483         483         483         483         483         483         483         483         483         483         483         483         366         254         1289         223         2006         2501         1545         1535         1181         1289         283         366         254         283         366         254         484         3890         4103           372         408         693         892         892         893         997         771         907         591         579         4574         486         389         1401         533         379         4574         4894         4870         4894         4870         4894         4873         4884         490         783         383         379         457         4894         4873         383         379         453         4894         4873         383         379         453         388         367         381         386         582<td>  1111   170   1978   2015   230   2345   1902   2008   1635   2018   318   1296   10294   10852   444   493   2815   2836   2848   283</td><td>  1967   2013   2086   2861   3349   3354   3190   3266   2014   2015   2016   3628  </td><td>  1987   2073   2288   2316   2289  </td><td>  473   497   688   731   1037   1044   745   7696   6248   311   566   558   413   4141   4141   41513   2228   2310   22289   2269   2262   2244   2229   2266   1566   16166   20254   2145   11111   1171   1772   2080   2815   3349   3354   3190   3255   2244   2229   2266   1566   20254   2145   21111   1171   1772   2080   2815   3349   3354   3190   3255   2245   2350   2245   2350   2245   2350   2245   2350   2245   2350   2245   2350   2245   2350   2345   2350   2345   2350   2345   2350   2345   2350   2348   2350   2348   2350   2348   2350   2348   2348   2350   2348   2348   2350   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2350   2348   2350   2348   2350   2348   2350   2348   2350   2348   2350   2354   2352   2356   2352   2354   2352   2356   2352   2358   2350   2348   2350   2354   2352   2352   23</td><td>  Poly   Poly  </td><td>720         74         1144         1175         1583         1699         1284         1364         1364         1364         1364         1364         1364         1363         1685         1644        
1371         7617         7617         7617         7787         843         1357         1383         1428         1428         1436         1410         1303         1555         919         913         7167         7513         7767         7513         7476         7513         7467         7513         7476         7513         7476         7513         7476         7513         7476         7513         7476         7513         7476         7513         7476         7513         7476         7513         7476         7528         2602         2248         811         6568         2618         647         752         2602         2243         392         2902         2943         3942         2845         2245         2245         2245         2245         2245         2245         2245         2245         2245         2247         2446         2823         4824         2447         2484         3832         3832         3902         2501         3941         2524</td><td>688         731         144         1142         1624         1625         1149         1194         1195         1964         1066         6835         7115           799         822         1183         1219         1423         1469         1644         1680         1644         1363         1185         1085         1041         1033         7127         7161           799         822         1183         1219         1423         1439         1644         1630         1640         2110         1228         1995         7167         7867           799         822         1433         1437         1532         2628         2331         2289         2289         2082         2414         1638         2319         2265         584         4133         4410           1111         1170         1978         2015         2389         2289         2029         2029         2029         2029         2024         2443         811         483         884         428         2444         1434         1434         1434         4287         2441         4287         2441         4287         2443         2448         2444         2487         244</td><td>  14.00   14.0</td><td>30/2         30/3         50/4         50/4         60/4         <th< td=""><td>300 3016 822 820 567 7565 863 679 440 611 640 649 3222 3380 3022 337 844 947 473 4239 4875 4845 4706 4866 3664 4831 3224 3380 1438 1517 2413 2451 7576 2791 3239 3074 1444 1442 1524 1524 1528 1496 868 731 1444 1442 1524 1524 1528 1549 1896 868 731 1444 1175 1588 1699 1428 1439 1395 9481 1577 1065 1666 6835 7115 7299 862 1818 1219 1423 1429 1423 1429 1423 1429 1423 1429 1423 1429 1424 1424 1424 1424 1424 1424 1424</td><td>  1444   1447   2474   2584   2685   2683   2685   3005   2475   3005   3476   3005   3486   3394   3374   4288   3300   316   522   526   536  </td><td>4063 4235 7744 8287 8268 9667 9381 7425 7837 5573 6785 8865 6783 40727 43494 1441 1442 2474 2884 2895 2832 8381 3005 1658 1494 13374 14288 300 316 522 520 567 568 683 782 475 3000 1528 1494 13374 14288 300 316 522 520 567 568 683 782 2475 3000 1528 1494 13374 14288 300 316 522 520 403 410 3388 3702 2510 2524 1473 428 4875 4845 476 4866 3864 4891 3524 3410 3388 3702 2510 2524 1473 428 4875 4845 476 4866 3864 4891 3524 3410 3388 3702 2510 2524 1473 428 4875 4845 476 4866 3864 4891 3525 4841 332 2481 1775 1883 1699 1694 1107 1878 2015 2882 2883 1694 1403 3155 1997 1978 2015 2882 2882 1883 1219 1428 1423 1365 1440 1303 1555 1991 37167 7613 799 882 1835 1299 1428 1428 1423 1365 1440 1303 1555 1991 37167 7613 799 882 1835 1299 1428 1428 1423 1365 1440 1303 1555 1991 37167 7613 799 882 1835 1391 3289 2898 2898 2898 2898 2898 2898 2898</td><td>  188</td><td>  1080   116   1859   1559   1952   1945   1976   1976   1976   1976   1977   1976   1976   1976   1977  
1977   1</td><td>                                     </td><td>654         733         1013         1046         1027         1054         1122         1236         1272         1290         6488         6488           8260         87091         6581         5282         1582         1284         2244         2901         2521         1270         1080         1113         1080         1113         1080         1113         1080         1113         0080         11143         1080         1113         0080         11143         1080         11143         1080         11143         1080         1143         1080         1143         1080         1143         1080         401         1143         1141         1142         214         <t< td=""><td>654         733         1134         9475         2594         2596         8681         2692         1269         1275         1269         1</td><td>  10027   1171   1594   1783   1790   1793   2949   2195   2197   2587   2596   2596   2077   2498   2498   2797   2596   2596   2698   2797   2498   2498   2797   2596   2596   2798  </td><td>                                     </td><td>                                     </td></t<></td></th<></td></td></td> | 417         792         826         79         761         134         1609         2023         2034         751         2037         2041         754         757         2037         2041         754         757         2037         2041         2023         2034         2032         2034         2032         2034         2032         2034         2032         2031         1050         2037         2044         2032         2031         1050         1050         2037         2044         2032         2031         1050         1050         1050         2037         2044         2032         2039         2031         1050         1050         1050         2037         2041         2048         2038         2079         2016         15805         16791         2037         2042         2044         355         4521         4798         4248         5383         3156         3092         22333         23994           1165         1808         1869         2199         2206         1818         1876         1778         2176         1297         1278         9984         10570           179         237         242         284         283         272         < | 4687         7358         7592         7719         7811         7973         8252         7719         7811         7973         8252         7739         7751         6202         7006           475         792         826         739         761         1541         1609         2023         2664         754         751         6202         7006         7006         720         7006         720         7006         720         720         720         720         721         2154         200         739         494         232         229         1971         2154         200         2016         15805         16791         22154         200         379         494         232         229         1971         2154         200         200         220         1971         2154         200         200         2233         23994         220         2233         23994         2159         2203         23994         2159         2203         23994         10570         852         2592         6054         10570         852         2592         6054         10570         10570         10570         10570         10570         10570         8521         2592 <t< td=""><td>1499         2324         2379         2273         2300         2940         3027         2457         3051         1493         4657         762         4687         7358         7592         7719         7811         7973         8262         7155         8869         4406         4364         39025         41585           475         792         826         739         761         1541         1609         2023         2664         754         4964         39025         41585           261         322         333         428         437         375         400         379         494         232         2291         1971         2154           2077         2991         3120         3086         3095         2944         3155         2745         3328         2079         2016         15805         16791           2374         3694         3812         4463         4535         4521         4798         4288         5383         3156         3092         2233         23994           1165         1808         1869         2199         2206         1818         1876         1778         2176         1297         1278         99</td><td>161         179         323         321         378         381         251         252         224         275         177         174         1314           1385         1499         2324         2379         2273         2300         2940         3027         2457         3051         1493         1465         13721           4414         4687         7358         7592         7719         7811         7973         8262         7155         8869         4406         4364         39025         41585           441         475         792         826         739         761         1541         1609         2023         2664         754         751         6290         7086           235         261         322         333         428         437         375         400         379         494         232         229         1971         2154           1960         2077         2991         3120         3086         3095         2944         3155         2745         3328         2079         2016         15805         16791       
   2211         2374         3694         3812         4463         4521</td><td>625         685         1069         1105         1336         1354         1205         1276         986         1275         692         687         591         592           161         179         323         321         378         381         251         252         224         275         177         174         1514         1582           1385         1499         2324         2379         2273         2300         2940         3027         2457         3051         1465         12872         13721           4414         4687         7358         7592         7719         7811         7973         8262         7155         8869         4406         4364         39025         41585           441         475         792         826         739         761         1541         1609         2023         2664         754         751         6290         7986           235         261         322         333         428         437         375         400         379         494         232         229         1971         2154           2211         237         2443         3453         4521         4798</td><td>313         332         361         379         531         538         563         585         315         368         427         416         2510         2618           625         685         1069         1105         1336         1354         1205         1276         986         1275         687         5913         6382           185         1499         2324         2379         2273         2300         2940         3027         2457         3051         1493         1465         12872         13721           4414         4687         7358         7592         7719         7811         7973         8262         7155         8869         4406         4364         39025         41585           4414         4677         7358         7592         7719         7811         7973         8262         7155         8869         4406         4364         39025         41585           4414         475         322         333         428         437         375         400         379         494         232         229         1971         2154           1960         2071         3243         4535         4521</td><td>2902         3074         4499         4573         5156         5196         4903         5155         3595         4309         3679         3610         24734         25917           313         332         361         379         531         538         563         585         315         368         427         416         2510         2618           6625         685         1069         1105         1336         1354         1205         1276         986         1275         692         687         5913         6382           161         179         323         321         378         381         251         252         224         275         177         174         1514         1582           1385         1499         2324         2379         2273         2300         2940         3027         2457         3051         1493         1465         12872         1375           4414         4767         7358         7592         781         7793         7811         7973         8262         7715         8869         4406         4364         3962         7984         232         <t>229         7514         6290         <th< td=""><td>  1160   1236   2122   2193   2654   2738   2268   2354   2073   2554   1617   1610   11894   12685     2902   3074   4499   44573   5156   5196   4903   5155   3595   4309   3679   3610   24734   25917     313   332   361   379   531   538   563   585   315   368   427   416   2510   2618     625   685   1069   1105   1336   1354   1205   1276   986   1275   692   687   5913   6382     161   179   323   321   378   381   225   225   224   275   177   174   1514   1582     1414   4687   7358   7592   7719   7811   7973   8262   7155   8869   4406   4364   39027   1324     1385   2491   3120   3086   3095   2944   3155   2745   3328   2079   2016   15805   16791     12374   3694   3812   4463   4535   4521   4798   4288   5383   3156   3092   22333   23994     1084   1165   1808   1869   2199   2206   1818   1876   1778   2176   1297   1278   3994     1084   1165   1808   1869   2199   2206   1818   1876   1778   2176   1297   1278   3994     1085   578   585   585   80   81   897   886   156   174   170   503     1086   577   554   580   699   738   2153   2211   455   577   4408   4319   8521   8696     1087   14666   117398   128729   130021   134028   139529   117345   145193   99060   97468   661509   701509     1087   1360   14666   17398   128729   130021   134028   139529   117345   145193   99060   97468   661509   701509     1087   1087   1087   128729   130021   134028   139529   117345   145193   99060   97468   661509   701509     1088   1360</td><td>880         980         1472         1573         1499         1491         1785         1842         1699         2188         1479         1525         1499         1491         1785         1842         1699         2188         1126         1122         8459         9096           1160         1236         2122         2193         2654         2738         2268         2354         2073         2554         1617         1610         11894         12685           2902         3074         4499         4573         5156         5196         4903         5155         3595         4309         3610         24734         25917           2902         3074         4499         4573         5156         5196         4903         5155         3595         4309         3610         24734         25917           2902         3074         4499         4573         5136         1354         1205         1276         492         2673         5913         6382           161         179         2324         2379         2273         2300         2940         3027         2457         3051         1493         1465         12872         13721</td><td>  151   162   245   250   374   379   259   311   260   349   230   249   231   249   231   249   231   249   231   249   231   249   231   249   231   249   231   249   231   249   231   249   231   249   232   249   253   254   254</td><td>1663         1810         2795         2990         2986         3075         3105         3307         3260         4003         1973         31901</td><td>3656       
 3847         5864         5823         6892         6859         6952         7175         5554         6562         7085         6995         38003         3718           1663         1810         2795         2999         2986         374         379         295         311         266         4003         1973         15782         17083           1529         1425         2500         374         379         295         311         266         349         253         246         1584         1697           2981         3138         4972         5500         5586         5660         7281         7452         5328         6500         4163         4101         30311         31901           880         938         1470         1535         1499         1491         1785         1842         1699         2168         1102         1849         9096           1160         1232         261         3535         553         558         553         355         3409         3679         3610         24734         25917           2002         2324         2371         378         252         224         275</td><td>558         604         920         945         884         910         793         833         1032         1323         383         379         4570         4994           3666         3847         5864         5823         6892         6895         6952         7175         5554         6562         7085         6950         3003         373         373         373         373         379         15782         17083         17083         17083         1973         1973         1973         1973         1973         1978         17083         1697         1538         1499         1491         1785         3307         266         3003         1973         1973         1973         1973         1978         1697         1268         1697         2684         1697         1083         1499         1491         1785         1842         1699         2168         1126         1120         2031         3311         31901         3844         1697         2652         2248         1275         2652         2248         2379         2713         318         268         1617         1610         11894         12688         1617         1610         11894         1269</td><td>2108         2193         3209         3248         3485         3550         3583         3704         2302         2708         2682         2614         17369         18017           558         804         920         945         884         910         793         833         1032         1333         333         379         4570         4894           3656         3847         5864         8829         8829         8826         3075         3103         1333         1333         333         1973         15782         17083           151         162         245         2500         374         379         225         311         266         349         253         246         1584         1697           2881         3138         4972         5060         5586         5650         7281         7452         5328         6500         4163         4101         3311         3190           2881         3138         4372         5565         5296         7281         7452         5328         6500         4163         4101         3313         349         2264         273         252         228         253         4163</td><td>  618 647   736 736 974 986 938 995 717 907 591 579 4574 4870   2108 2193 3209 3248 3485 3550 3583 3704 2302 2708 2682 2614 17369 18017   3656 3447 5864 5923 6892 6895 6952 7175 5554 6562 7085 6953 3793 4570 4994 3663 1810 2795 2999 2986 3075 3105 3307 3260 4003 1973 1979 15782 17083 151 162 245 250 2989 2886 5650 7281 7281 266 349 253 246 1584 1697 2981 3138 4972 5000 5586 5650 7281 7281 266 349 253 246 1193 4101 30311 3921 1810 2982 2193 2654 2738 2268 2354 2073 2554 1617 1610 11994 12685 2902 3074 4499 4573 5156 5196 4903 5155 385 3409 3679 3610 24734 25917 3031 332 381 379 531 538 563 585 315 388 427 416 2510 24734 25917 3031 3932 381 379 531 538 585 315 388 427 416 2510 2685 2685 1069 1105 1336 1354 1205 1276 892 6875 8913 6382 1611 179 323 321 378 381 251 252 224 275 177 174 1514 1582 2314 4687 7388 7592 7719 7811 7973 8262 7755 8869 4406 4364 39025 41585 2917 2934 3912 3086 3095 2944 3155 2745 328 2079 2016 15805 16791 4849 4877 2591 3021 3086 3095 2944 3155 2745 328 2079 2016 15805 16791 4879 4879 4879 4879 4879 4879 4879 4879</td><td>372         488         667         676         695         811         821         642         771         808         900         366         366         366         366         366         366         366         366         366         366         368         368         368         369         717         907         591         579         4574         4870           2108         2919         3209         3248         3485         3550         3583         393         2708         2882         2614         17369         1810         793         383         393         383         3979         4570         4894           4663         1810         2795         2909         2986         3075         3105         3307         3260         4003         3731         4894           1663         1810         2795         2909         2986         3075         3105         3307         3260         4003         1973         1979         15782         17083           1161         1262         2913         2865         2510         2518         2427         2457         3291         2845         29096           1161</td><td>293         307         437         462         584         481         485         441         485         495         300         300         200           372         408         659         695         811         821         649         711         808         990         366         368         391         470         591         579         4874         4870           2108         2132         3209         348         370         773         383         379         4570         4894           366         3847         5864         5920         2986         3075         3105         3307         3200         348         1401         3313         332         246         1489         473         5166         5486         5685         5680         5860         5860         5860         4660         4027         4162</td></th<></t></td></t<> <td>  1902   1987   2935   2946   2631   2545   2932   2336   2006   2501   1545   1535   11951   12933   372   396   787   7462   584   585   496   585   363   366   2584   2831   372   396   6787   787   980   982   721   768   535   681   495   484   3890   4103   377   408   659   655   674   986   983   395   574   4870   2708   2838   376   4574   4870   2708   2838   376   4574   4870   2708   2838   3847   2864   5923   2886   3655   3833   379   4570   4994   3856   3847   5864   5923   2886   3675   3745   3745   3785   3833   379   4570   4994   3856   3847   5864   5923   2886   3675   3775   3265   3783   379   4770   4994   3785   3785   3785   3785   3785   3785   3785   3785   3785   3883   379   4770   4994   3856   3865</td> <td>454         493         815         831         843         858         789         823         905         1091         547         538         483         483         483         483         483         483         483         483         483         483         483         483         483         483         483         483         483         483         483         366         254         1289         223         2006         2501         1545         1535         1181         1289         283         366         254         283         366         254         484         3890         4103           372         408         693         892         892         893         997         771         907         591         579         4574         486         389         1401         533         379         4574         4894         4870         4894         4870         4894         4873         4884         490         783         383         379         457         4894         4873         383         379         453         4894         4873         383         379         453         388        
367         381         386         582<td>  1111   170   1978   2015   230   2345   1902   2008   1635   2018   318   1296   10294   10852   444   493   2815   2836   2848   283</td><td>  1967   2013   2086   2861   3349   3354   3190   3266   2014   2015   2016   3628  </td><td>  1987   2073   2288   2316   2289  </td><td>  473   497   688   731   1037   1044   745   7696   6248   311   566   558   413   4141   4141   41513   2228   2310   22289   2269   2262   2244   2229   2266   1566   16166   20254   2145   11111   1171   1772   2080   2815   3349   3354   3190   3255   2244   2229   2266   1566   20254   2145   21111   1171   1772   2080   2815   3349   3354   3190   3255   2245   2350   2245   2350   2245   2350   2245   2350   2245   2350   2245   2350   2245   2350   2345   2350   2345   2350   2345   2350   2345   2350   2348   2350   2348   2350   2348   2350   2348   2348   2350   2348   2348   2350   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2348   2350   2348   2350   2348   2350   2348   2350   2348   2350   2348   2350   2348   2350   2354   2352   2356   2352   2354   2352   2356   2352   2358   2350   2348   2350   2354   2352   2352   23</td><td>  Poly   Poly  </td><td>720         74         1144         1175         1583         1699         1284         1364         1364         1364         1364         1364         1364         1363         1685         1644         1371         7617         7617         7617         7787         843         1357         1383         1428         1428         1436         1410         1303         1555         919         913         7167         7513         7767         7513         7476         7513         7467         7513         7476         7513         7476         7513         7476         7513         7476         7513         7476         7513         7476         7513         7476         7513         7476         7513         7476         7528         2602         2248         811         6568         2618         647         752         2602         2243         392         2902         2943         3942         2845         2245         2245         2245         2245         2245         2245         2245         2245         2245         2247         2446         2823         4824         2447         2484         3832         3832         3902         2501         3941         2524</td><td>688         731         144         1142         1624         1625         1149         1194         1195         1964         1066         6835         7115           799         822         1183         1219         1423         1469         1644         1680         1644         1363         1185         1085         1041         1033         7127         7161           799         822         1183         1219         1423         1439         1644         1630         1640         2110         1228       
 1995         7167         7867           799         822         1433         1437         1532         2628         2331         2289         2289         2082         2414         1638         2319         2265         584         4133         4410           1111         1170         1978         2015         2389         2289         2029         2029         2029         2029         2024         2443         811         483         884         428         2444         1434         1434         1434         4287         2441         4287         2441         4287         2443         2448         2444         2487         244</td><td>  14.00   14.0</td><td>30/2         30/3         50/4         50/4         60/4         <th< td=""><td>300 3016 822 820 567 7565 863 679 440 611 640 649 3222 3380 3022 337 844 947 473 4239 4875 4845 4706 4866 3664 4831 3224 3380 1438 1517 2413 2451 7576 2791 3239 3074 1444 1442 1524 1524 1528 1496 868 731 1444 1442 1524 1524 1528 1549 1896 868 731 1444 1175 1588 1699 1428 1439 1395 9481 1577 1065 1666 6835 7115 7299 862 1818 1219 1423 1429 1423 1429 1423 1429 1423 1429 1423 1429 1424 1424 1424 1424 1424 1424 1424</td><td>  1444   1447   2474   2584   2685   2683   2685   3005   2475   3005   3476   3005   3486   3394   3374   4288   3300   316   522   526   536  </td><td>4063 4235 7744 8287 8268 9667 9381 7425 7837 5573 6785 8865 6783 40727 43494 1441 1442 2474 2884 2895 2832 8381 3005 1658 1494 13374 14288 300 316 522 520 567 568 683 782 475 3000 1528 1494 13374 14288 300 316 522 520 567 568 683 782 2475 3000 1528 1494 13374 14288 300 316 522 520 403 410 3388 3702 2510 2524 1473 428 4875 4845 476 4866 3864 4891 3524 3410 3388 3702 2510 2524 1473 428 4875 4845 476 4866 3864 4891 3524 3410 3388 3702 2510 2524 1473 428 4875 4845 476 4866 3864 4891 3525 4841 332 2481 1775 1883 1699 1694 1107 1878 2015 2882 2883 1694 1403 3155 1997 1978 2015 2882 2882 1883 1219 1428 1423 1365 1440 1303 1555 1991 37167 7613 799 882 1835 1299 1428 1428 1423 1365 1440 1303 1555 1991 37167 7613 799 882 1835 1299 1428 1428 1423 1365 1440 1303 1555 1991 37167 7613 799 882 1835 1391 3289 2898 2898 2898 2898 2898 2898 2898</td><td>  188</td><td>  1080   116   1859   1559   1952   1945   1976   1976   1976   1976   1977   1976   1976   1976   1977   1</td><td>                                     </td><td>654         733         1013         1046         1027         1054         1122         1236         1272         1290         6488         6488           8260         87091         6581         5282         1582         1284         2244         2901         2521         1270         1080         1113         1080         1113         1080         1113         1080         1113         0080         11143         1080         1113         0080         11143         1080         11143         1080         11143         1080         1143         1080         1143         1080         1143         1080         401         1143        
1141         1142         214         <t< td=""><td>654         733         1134         9475         2594         2596         8681         2692         1269         1275         1269         1</td><td>  10027   1171   1594   1783   1790   1793   2949   2195   2197   2587   2596   2596   2077   2498   2498   2797   2596   2596   2698   2797   2498   2498   2797   2596   2596   2798  </td><td>                                     </td><td>                                     </td></t<></td></th<></td></td> | 1499         2324         2379         2273         2300         2940         3027         2457         3051         1493         4657         762         4687         7358         7592         7719         7811         7973         8262         7155         8869         4406         4364         39025         41585           475         792         826         739         761         1541         1609         2023         2664         754         4964         39025         41585           261         322         333         428         437         375         400         379         494         232         2291         1971         2154           2077         2991         3120         3086         3095         2944         3155         2745         3328         2079         2016         15805         16791           2374         3694         3812         4463         4535         4521         4798         4288         5383         3156         3092         2233         23994           1165         1808         1869         2199         2206         1818         1876         1778         2176         1297         1278         99 | 161         179         323         321         378         381         251         252         224         275         177         174         1314           1385         1499         2324         2379         2273         2300         2940         3027         2457         3051         1493         1465         13721           4414         4687         7358         7592         7719         7811         7973         8262         7155         8869         4406         4364         39025         41585           441         475         792         826         739         761         1541         1609         2023         2664         754         751         6290         7086           235         261         322         333         428         437         375         400         379         494         232         229         1971         2154           1960         2077         2991         3120         3086         3095         2944         3155         2745         3328         2079         2016         15805         16791           2211         2374         3694         3812         4463         4521 | 625         685         1069         1105         1336         1354         1205         1276         986         1275         692         687         591         592           161         179         323         321         378         381         251         252         224         275         177         174         1514         1582           1385         1499         2324         2379         2273         2300         2940         3027         2457         3051         1465         12872         13721           4414         4687         7358         7592         7719         7811         7973         8262         7155         8869         4406         4364         39025         41585           441         475         792         826         739         761         1541         1609         2023         2664         754         751         6290         7986           235         261         322         333         428         437         375         400         379         494         232         229         1971         2154           2211         237         2443         3453         4521         4798 | 313         332         361         379         531         538         563         585         315         368         427         416         2510         2618           625         685         1069         1105         1336         1354         1205         1276         986         1275         687         5913         6382           185         1499         2324         2379         2273         2300         2940         3027         2457         3051         1493         1465         12872         13721           4414         4687         7358         7592         7719         7811         7973         8262         7155         8869         4406         4364         39025         41585           4414         4677         7358         7592         7719         7811         7973         8262         7155         8869         4406         4364         39025         41585           4414         475         322         333         428         437         375         400         379         494         232         229         1971         2154           1960         2071         3243         4535         4521 | 2902         3074         4499         4573         5156         5196         4903         5155         3595         4309         3679         3610         24734         25917           313         332         361         379         531         538         563         585         315         368         427         416         2510         2618           6625         685         1069         1105         1336         1354         1205         1276         986         1275         692         687         5913         6382           161         179         323         321         378         381         251         252         224         275         177         174         1514         1582           1385         1499         2324         2379         2273         2300         2940         3027         2457         3051         1493         1465         12872         1375           4414         4767         7358         7592         781         7793         7811         7973         8262         7715         8869         4406         4364         3962         7984         232 <t>229         7514         6290         <th< td=""><td>  1160   1236   2122   2193   2654   2738   2268   2354   2073   2554   1617   1610   11894   12685     2902   3074   4499   44573   5156   5196   4903   5155   3595   4309   3679   3610   24734   25917     313   332   361   379   531   538   563   585   315   368   427   416   2510   2618     625   685   1069   1105   1336   1354   1205   1276   986   1275   692   687   5913   6382     161   179  
323   321   378   381   225   225   224   275   177   174   1514   1582     1414   4687   7358   7592   7719   7811   7973   8262   7155   8869   4406   4364   39027   1324     1385   2491   3120   3086   3095   2944   3155   2745   3328   2079   2016   15805   16791     12374   3694   3812   4463   4535   4521   4798   4288   5383   3156   3092   22333   23994     1084   1165   1808   1869   2199   2206   1818   1876   1778   2176   1297   1278   3994     1084   1165   1808   1869   2199   2206   1818   1876   1778   2176   1297   1278   3994     1085   578   585   585   80   81   897   886   156   174   170   503     1086   577   554   580   699   738   2153   2211   455   577   4408   4319   8521   8696     1087   14666   117398   128729   130021   134028   139529   117345   145193   99060   97468   661509   701509     1087   1360   14666   17398   128729   130021   134028   139529   117345   145193   99060   97468   661509   701509     1087   1087   1087   128729   130021   134028   139529   117345   145193   99060   97468   661509   701509     1088   1360</td><td>880         980         1472         1573         1499         1491         1785         1842         1699         2188         1479         1525         1499         1491         1785         1842         1699         2188         1126         1122         8459         9096           1160         1236         2122         2193         2654         2738         2268         2354         2073         2554         1617         1610         11894         12685           2902         3074         4499         4573         5156         5196         4903         5155         3595         4309         3610         24734         25917           2902         3074         4499         4573         5156         5196         4903         5155         3595         4309         3610         24734         25917           2902         3074         4499         4573         5136         1354         1205         1276         492         2673         5913         6382           161         179         2324         2379         2273         2300         2940         3027         2457         3051         1493         1465         12872         13721</td><td>  151   162   245   250   374   379   259   311   260   349   230   249   231   249   231   249   231   249   231   249   231   249   231   249   231   249   231   249   231   249   231   249   231   249   232   249   253   254   254</td><td>1663         1810         2795         2990         2986         3075         3105         3307         3260         4003         1973         31901</td><td>3656         3847         5864         5823         6892         6859         6952         7175         5554         6562         7085         6995         38003         3718           1663         1810         2795         2999         2986         374         379         295         311         266         4003         1973         15782         17083           1529         1425         2500         374         379         295         311         266         349         253         246         1584         1697           2981         3138         4972         5500         5586         5660         7281         7452         5328         6500         4163         4101         30311         31901           880         938         1470         1535         1499         1491         1785         1842         1699         2168         1102         1849         9096           1160         1232         261         3535         553         558         553         355         3409         3679         3610         24734         25917           2002         2324         2371         378         252         224         275</td><td>558         604         920         945         884         910         793         833         1032         1323         383         379         4570         4994           3666         3847         5864         5823         6892         6895         6952         7175         5554         6562         7085         6950         3003         373         373         373         373         379         15782         17083         17083         17083         1973         1973         1973         1973         1973         1978         17083         1697         1538         1499         1491         1785         3307         266         3003         1973         1973         1973         1973         1978         1697         1268         1697         2684         1697         1083         1499         1491         1785         1842         1699         2168         1126         1120         2031         3311         31901         3844         1697         2652         2248         1275         2652         2248         2379         2713         318         268         1617         1610         11894         12688         1617         1610         11894         1269</td><td>2108         2193         3209         3248         3485         3550         3583         3704         2302         2708         2682         2614         17369         18017           558         804         920         945         884         910         793         833         1032         1333         333         379         4570         4894           3656         3847         5864         8829         8829         8826         3075         3103         1333         1333         333         1973         15782         17083           151         162         245         2500         374         379         225         311         266         349         253         246         1584         1697           2881         3138         4972         5060         5586         5650         7281         7452         5328         6500         4163         4101         3311         3190           2881         3138         4372         5565         5296         7281         7452         5328         6500         4163         4101         3313         349         2264         273         252         228         253         4163</td><td>  618 647   736 736 974 986 938 995 717 907 591 579 4574 4870   2108 2193 3209 3248 3485 3550 3583 3704 2302 2708 2682 2614 17369 18017   3656 3447 5864 5923 6892 6895 6952 7175 5554 6562 7085 6953 3793 4570 4994 3663 1810 2795 2999 2986 3075 3105 3307 3260 4003 1973 1979 15782 17083 151 162 245 250 2989 2886 5650 7281 7281 266 349 253 246 1584 1697 2981 3138 4972 5000 5586 5650 7281 7281 266 349 253 246 1193 4101 30311 3921 1810 2982 2193
2654 2738 2268 2354 2073 2554 1617 1610 11994 12685 2902 3074 4499 4573 5156 5196 4903 5155 385 3409 3679 3610 24734 25917 3031 332 381 379 531 538 563 585 315 388 427 416 2510 24734 25917 3031 3932 381 379 531 538 585 315 388 427 416 2510 2685 2685 1069 1105 1336 1354 1205 1276 892 6875 8913 6382 1611 179 323 321 378 381 251 252 224 275 177 174 1514 1582 2314 4687 7388 7592 7719 7811 7973 8262 7755 8869 4406 4364 39025 41585 2917 2934 3912 3086 3095 2944 3155 2745 328 2079 2016 15805 16791 4849 4877 2591 3021 3086 3095 2944 3155 2745 328 2079 2016 15805 16791 4879 4879 4879 4879 4879 4879 4879 4879</td><td>372         488         667         676         695         811         821         642         771         808         900         366         366         366         366         366         366         366         366         366         366         368         368         368         369         717         907         591         579         4574         4870           2108         2919         3209         3248         3485         3550         3583         393         2708         2882         2614         17369         1810         793         383         393         383         3979         4570         4894           4663         1810         2795         2909         2986         3075         3105         3307         3260         4003         3731         4894           1663         1810         2795         2909         2986         3075         3105         3307         3260         4003         1973         1979         15782         17083           1161         1262         2913         2865         2510         2518         2427         2457         3291         2845         29096           1161</td><td>293         307         437         462         584         481         485         441         485         495         300         300         200           372         408         659         695         811         821         649         711         808         990         366         368         391         470         591         579         4874         4870           2108         2132         3209         348         370         773         383         379         4570         4894           366         3847         5864         5920         2986         3075         3105         3307         3200         348         1401         3313         332         246         1489         473         5166         5486         5685         5680         5860         5860         5860         4660         4027         4162</td></th<></t> | 1160   1236   2122   2193   2654   2738   2268   2354   2073   2554   1617   1610   11894   12685     2902   3074   4499   44573   5156   5196   4903   5155   3595   4309   3679   3610   24734   25917     313   332   361   379   531   538   563   585   315   368   427   416   2510   2618     625   685   1069   1105   1336   1354   1205   1276   986   1275   692   687   5913   6382     161   179   323   321   378   381   225   225   224   275   177   174   1514   1582     1414   4687   7358   7592   7719   7811   7973   8262   7155   8869   4406   4364   39027   1324     1385   2491   3120   3086   3095   2944   3155   2745   3328   2079   2016   15805   16791     12374   3694   3812   4463   4535   4521   4798   4288   5383   3156   3092   22333   23994     1084   1165   1808   1869   2199   2206   1818   1876   1778   2176   1297   1278   3994     1084   1165   1808   1869   2199   2206   1818   1876   1778   2176   1297   1278   3994     1085   578   585   585   80   81   897   886   156   174   170   503     1086   577   554   580   699   738   2153   2211   455   577   4408   4319   8521   8696     1087   14666   117398   128729   130021   134028   139529   117345   145193   99060   97468   661509   701509     1087   1360   14666   17398   128729   130021   134028   139529   117345   145193   99060   97468   661509   701509     1087   1087   1087   128729   130021   134028   139529   117345   145193   99060   97468   661509   701509     1088   1360 | 880         980         1472         1573         1499         1491         1785         1842         1699         2188         1479         1525         1499         1491         1785         1842         1699         2188         1126         1122         8459         9096           1160         1236         2122         2193         2654         2738         2268         2354         2073         2554         1617         1610         11894         12685           2902         3074         4499         4573         5156         5196         4903         5155         3595         4309         3610         24734         25917           2902         3074         4499         4573         5156         5196         4903         5155         3595         4309         3610         24734         25917           2902         3074         4499         4573         5136         1354         1205         1276         492         2673         5913         6382           161         179         2324         2379         2273         2300         2940         3027         2457         3051         1493         1465         12872         13721 | 151   162   245   250   374   379   259   311   260   349   230   249   231   249   231   249   231   249   231   249   231   249   231   249   231   249   231   249   231   249   231   249   231   249   232   249   253   254   254 | 1663         1810         2795         2990         2986         3075         3105         3307         3260         4003         1973         31901 | 3656         3847         5864         5823         6892         6859         6952         7175         5554         6562         7085         6995         38003         3718           1663         1810         2795         2999         2986         374         379         295         311         266         4003         1973         15782         17083           1529         1425         2500         374         379         295         311         266         349         253         246         1584         1697           2981         3138         4972         5500         5586         5660         7281         7452        
5328         6500         4163         4101         30311         31901           880         938         1470         1535         1499         1491         1785         1842         1699         2168         1102         1849         9096           1160         1232         261         3535         553         558         553         355         3409         3679         3610         24734         25917           2002         2324         2371         378         252         224         275 | 558         604         920         945         884         910         793         833         1032         1323         383         379         4570         4994           3666         3847         5864         5823         6892         6895         6952         7175         5554         6562         7085         6950         3003         373         373         373         373         379         15782         17083         17083         17083         1973         1973         1973         1973         1973         1978         17083         1697         1538         1499         1491         1785         3307         266         3003         1973         1973         1973         1973         1978         1697         1268         1697         2684         1697         1083         1499         1491         1785         1842         1699         2168         1126         1120         2031         3311         31901         3844         1697         2652         2248         1275         2652         2248         2379         2713         318         268         1617         1610         11894         12688         1617         1610         11894         1269 | 2108         2193         3209         3248         3485         3550         3583         3704         2302         2708         2682         2614         17369         18017           558         804         920         945         884         910         793         833         1032         1333         333     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Nation's Oldest Ham Radio Newsletter

November 1, 1995

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• Three Technician amateurs have written the FCC seeking changes in the General Class telegraphy requirements. Alan N. Selin, WA1AGK (Naples, FL), Christopher S. Salinas, NØTTW (Brainerd, MN) and Clifford R. Todd, KB5YSW (Carthage, TX) wrote separate letters to the FCC which the Commission treated as Petitions for Rulemaking.

Basically they wanted the substitution of 5 words-per-minute (wpm) for the 13 wpm telegraphy requirement necessary to qualify for an amateur service General Class operator license.

Mr. Todd's letter was signed by seven other amateur service licensees. Todd and Selin also requested that holders of the Technician-Plus Class operator licenses be granted General Class operator privileges.

The FCC ruled, "The current amateur service license structure and examination requirements were developed in accordance with the expressed desires of the amateur service community through numerous rule making proceedings that generated thousands of comments. The amateur service indicated on each occasion that it strongly desires to preserve communications by telegraphy. After considering the views expressed in those proceedings, the Commission adopted the rules that are codified in Part §97.527. The requestors have not presented sufficient evidence to justify revisiting these matters at this time." (FCC Order released: Oct. 19, 1995.)

• The FCC warehouse which is used to store and make distribution of certain FCC forms has moved from Hyattsville, Maryland to: 9300 E. Hampton Drive, Capital Heights, MD 20743. Shipments from the new location began on Oct. 23rd. FCC forms (such as the Form 610 Amateur Radio Operator/Station Application) may be ordered by telephoning: 1-800-418-3676 (FORM)

Do not, however, order the FCC Form 610-V (used to request a user-se-lected "vanity" station call sign) since this form is not yet available. The FCC is presently changing the instruction pages and again going through the review process. The FCC has promised to send us a print master so that we can print the 610-V. Send an SASE if you want us to send you a free copy.

• Anthony J. Sivo, W2FJ of Plainsboro, NJ writes that he is being interfered with by a relatively new product known as an "Invisible Fence."

These buried RF generating devices prevent pet dogs from roaming past the perimeter wire. The problem is that they also cause interference (in Sivo's case) between 30 kHz and 2 mHz to sensitive receivers when residences share common power transformers. The amateur 160 meter band falls within this range.

Sivo has not yet been successful in getting the manufacturer, FCC or neighbors to properly address the situation. The FCC rules pertaining to incidental radiation from Part 15 devices give precedence to licensed radio services. Part 15 devices are required by \$15.19(a)(3) to be labelled "(1.) This device may not cause harmful interference, and (2.) this device must accept any interference received including interference that may cause undesired operation."

- The Personal Radio Steering Group (PRSG) was unsuccessful in its attempt to delay reply comments on the FCC's NPRM to "...establish a very short distance two-way voice radio service," commonly called the Family Radio Service. PRSG wanted the Oct. 16 reply comment cutoff date extended to Nov. 30. (See story on page 10.)
- Robert L. Maurais, KC1IV, an Industrial Arts teacher at a Yarmouth,
   Maine middle school has been named "Maine's 1996 Teacher of the Year."
   Maurais was selected from 17 finalists for introducing his students to aviation, aerospace, meteorology, engineering, robotics and amateur radio. (Boston Globe, Oct. 6, 1995.)
- Bob Bruniga, WB4APR of Glen Burnie, Maryland hopes to orbit an amateur satellite at an upcoming March 1996 launch. He already has a NASA "invite" for a free shuttle ride. Bob wants to orbit a 1-watt Picosat, AX-25 FM 2-meter 1200 baud packet transponder for digipeating position reports. If everything goes well, then the GPS-equipped football that is run from Annapolis to the site of the next year's Army/Navy football game could be tracked by the APR-SAT rather than by participating packet stations!

- The FCC has amended the Rules applying to several radio services
   including the amateur service - to reflect that the FCC's new organizational structure. The Private Radio Bureau (PRB) is now the Wireless Telecommunications Bureau. (WTB.)
- Due to health problems, the Charlotte Volunteer Examiner Coordinator (VEC), Charlotte, NC has requested that their Memorandum of Agreement to provide amateur service testing be cancelled.
- Some amateurs are interested in the possibilities of using recently available commercial 902-928 MHz digital "spread spectrum" telephones on the 33-cm ham band. Radio Shack, among others, has one. With higher power, their half mile range could be increased. The rules require that a log be kept of all voice/text/data amateur SS communications "convertible to the original information." Spread spectrum was invented during World War II to provide secure communications.
- The World Radio Conference got underway Monday, October 23rd in Geneva. We won't know until Nov. 17th if the international law (RR2735) that requires Morse telegraphy knowledge when an amateur operates on the high frequency bands will be "suppressed" (that is, eliminated from the international radio regulations.) None of WRC-95's agreements are announced until after the conference closes.
- We heard that the ARRL has fallen behind in processing DXCC applications. Many QSL cards were received during late September in order to beat the yearly Honor Roll cutoff.
- The new GMDSS (Global Maritime Distress and Safety System) question pools have been received from the FCC and incorporated into a booklet. GMDSS is the new commercial radio satellite-based alerting system that replaces radiotelegraphy at sea. Contact 1-800-669-9594 is you need a copy of the Element 7 (GMDSS Operator) and Element 9 (GMDSS Maintainer) pools.
- The digital revolution hasn't reached every American. Only one third of U.S. homes have a PC and one family in ten uses an online service.

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### K1MAN ALLEGES "CRIMINAL CONSPIRACY..."

Glenn Baxter, K1MAN, (Belgrade Lakes, Maine) network manager of the *International Amateur Radio Network* (IARN) is apparently involved in some sort of controversy involving news gathering for CBS News. Baxter told W5YI that an alleged conspiracy is consistent with a letter to him from John P. Greenspan of the FCC dated Jan. 23, 1995, which threatened to revoke K1MAN's station license.

The facts are not real clear, but Baxter issued a rather strange press release on Oct. 13th charging that he believes there is apparently some sort of conspiracy "...to drag me before an administrative law judge and totally take me by surprise with the totally false evidence concocted by the corrupt FCC and CBS and orchestrated by ARRL." Baxter said "It was a slick plan that backfired, ...I am going to press criminal charges."

It seems that CBS News issued a check to Baxter on Nov. 30, 1989 in the amount of \$88.00 which was never cashed. Another check for \$135.00 was issued on May 8, 1991 ...again, never cashed. We assume (but are not certain) that the checks were compensation for news gathering work done for them on amateur radio frequencies by Baxter.

On Aug. 6, 1992 and again on Oct. 23, 1992. CBS News wrote Baxter notifying him that since the checks had been outstanding for more than a year, "...we have stopped payment... If you were never reimbursed for your services rendered (or material provided us) as originally covered by [these checks], please contact us in writing so that a new check may be issued." The press release does not say what happened to the checks.

The Treasurer of the State of Maine wrote Baxter advising him that \$88.00 was paid by CBS, Inc., to the Office of the Treasurer "...property to which you appear to be entitled is being held on your behalf. ...Should you have any questions as to any of the above please do not hesitate to get in touch with the Abandoned Property Division in the Treasurer's Office." Baxter said he had no knowledge of this payment until he received the letter on Oct. 7, 1995.

The Baxter press release says "In Dec. of 1994. CBS apparently paid the State of Maine, on behalf of Baxter, and without Baxter's knowledge or approval, \$2,150.22..." Baxter obtained a copy of a Report of Abandoned Property dated Dec. 12, 1994 from the state. On Oct. 10, 1995 Baxter met personally with the U.S. attorney, Jay McCloskey, in Bangor, Maine to discuss his investigation into the alleged criminal conspiracy..."

### MORE ON KV4FZ's LICENSE RENEWAL PROCEEDING

In our last issue we covered the Herbert L. Schoenbohm hearing held in Washington, DC on Aug. 15th. The hearing was convened to determine if KV4FZ possessed the proper character to remain a Commission licensee. His ham ticket was up for renewal last year, but the FCC did not grant the renewal. Instead, the FCC questioned whether the renewal would be in the public interest. In 1987, Schoenbohm (of Kingshill, U.S. Virgin Islands) was convicted of fraudulently using misappropriated access codes to make free long distance telephone calls.

At the end of the hearing, Administrative Law Judge Edward Luton directed the Wireless Telecommunications Bureau (WTB) and Schoenbohm's attorney to submit statements supporting their legal position. The ALJ received the *Proposed Findings of Fact and Conclusions of Law* statements during mid-September.

On Oct. 6th, both the WTB and Lauren A. Colby, KV4FZ's Frederick, Maryland attorney submitted reply comments to the judge. Here are some excerpts from those replies.

The FCC's reply to KV4FZ's statement criticizes
Schoenbohm for inaccurate or misleading testimony.
The FCC said that Schoenbohm characterized his felony conviction as being for "...having knowledge of certain telephone numbers that could be used to make long-distance telephone calls without paying for them" rather than for the fraudulent use of those numbers, the offense that KV4FZ was actually convicted of.

The FCC also took issue with Schoenbohm's contention that he lost at least \$150,00 in pension benefits as a result of losing his communications job with the Virgin Islands Police Department due to his conviction.

The WTB also pointed out that Schoenbohm was not appointed "Director of Transportation under the Department of Property and Procurement of the Virgin Islands Government" as he alleged. His own testimony indicated that he was appointed "Coordinator of Transportation, Property and Procurement." This was a political appointment of Victor Frazier, the congressional delegate from the U.S.V.I.

The FCC said there was reason to believe that Frazier did not know that Schoenbohm was convicted of <u>using</u> stolen telephone access codes, since he too referred to "possessing" the illegal numbers rather than actually using them. "...this indicates that Schoenbohm did not disclose the true nature of his crime to Delegate Frazier ...the same mischaracterization ...that he later made in his testimony and in his *Proposed Findings of Fact*," FCC said.

Contrary to Schoenbohm's statement, the FCC believes that he did indeed mean to ask another amateur radio operator to have a government official act in his behalf. These ex parte presentations are prohibited by law. KV4FZ contends that the Commission did

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not receive any letters from elected officials, but the FCC said that not every solicitation generates a response and "...is of no value in determining whether a solicitation was made."

The FCC feels that "Schoenbohm's findings are based mainly on self-serving testimony and, ...are generally unreliable." His belief that prior convictions must be "broadcast related" to be used against him is not accurate. There is no such policy, instead the FCC may "...consider convictions of crimes involving dishonesty and felony convictions for which it can be demonstrated that there is a substantial relationship between the criminal conviction and the applicant's propensity to be truthful or comply with the Commission's rules and policies."

The conclusion "...that Schoenbohm has a good, if not outstanding, record as an amateur licensee is erroneous. ...the record of this case does not indicate whether Schoenbohm has an overall record of compliance in the operation of his station. The public service activities described ...have no mitigating effect [and] are not relevant in evaluating Schoenbohm's qualifications."

Schoenbohm's accusation that the crime is too "remote in time" to affect his qualifications is also incorrect. "...the Commission, in a renewal case, may consider any conduct occurring within the current license term."

Schoenbohm's contention that the felony is not "FCC related misconduct" is irrelevant. "The Commission does not have any policy that excludes non-FCC related misconduct... Furthermore, the crime was indeed FCC-related because it involved ...the use of a communications service regulated by the Commission... (long distance telephone service.)"

Schoenbohm's contention that no one except him suffered any financial loss is again incorrect. "...theft of long distance telephone service caused a financial loss to the carrier..."

The FCC Reply to the ALJ ends with the belief that the felony conviction discloses "...a likelihood that if his application is granted, the Commission will not be able to rely on him to be truthful or to comply with the Communications Act and Commission's Rules and policies. Schoenbohm's flouting of the Commission's ex parte rules is the final 'nail in the coffin' showing that he can't be relied on. It is evident that Schoenbohm does not possess the requisite qualifications for a renewal of his amateur station and operator license."

Schoenbohm's reply to the FCC's Findings of Fact and Conclusions of Law said that KV4FZ was indeed truthful and honest and that there was no need for him to produce a string of witnesses. This is evidenced by the fact that the two highest elected officials

in the Virgin Islands, i.e., the Governor and the Delegate to Congress was aware of Schoenbohm's crime and each appointed Schoenbohm to paid positions. ...That should be sufficient to show that Schoenbohm enjoys the respect of his peers in matters involving truthfulness and honesty."

KV4FZ's attorney says that the FCC contention that Schoenbohm's government job was a political appointment "...does a grave disservice to the people of the Virgin Islands and their elected officials." A scandal is not one of the best ways to get re-elected.

Schoenbohm denied that he said he only "possessed" rather than used counterfeit access devices. He also believes that "it is understandable" that he did not have detailed information concerning his police department pension at his fingertips. The FCC had called his testimony in connection with the loss of his pension rights "incredible."

KV4FZ's attorney attacked a number of FCC arguments. He said Schoenbohm's crimes were not "frequent" since he was convicted of a single count, were not "current" since they occurred eight years ago and were not "serious" in light of the sentence imposed. Furthermore, the FCC introduced no notices of prior violations, forfeitures, or warning letters.

On KV4FZ's "rehabilitation", his attorney said "The events that led to Schoenbohm's conviction occurred eight years ago and, except for his two months of house confinement he had complete freedom to rob banks, hold up grocery stores, exceed the speed limit, and otherwise engage in egregious misconduct. However, except for parking tickets, he has not violated any additional laws, whatsoever."

The FCC had said that KV4FZ's "public service" was unsupported. Schoenbohm's attorney pointed out that "The record shows that Schoenbohm's life has almost been completely devoted to communications-related activities; that he worked for many years as a police radio dispatcher, while devoting his spare time to ham radio. [The FCC] cannot argue on the one hand that Schoenbohm's crime is serious because it was communications related, while refusing to recognize mitigating circumstances, flowing from his communications-related work at the police department or elsewhere. ... The fact is that Schoenbohm has been extraordinarily active in providing emergency communications, a fact proven by the written awards which he has received."

The next step is that the *Proposed Findings and Conclusions and Law* and the *Replies* will be considered by the Administrative Law Judge. He will then issue an initial decision within 90 days. The ruling can be appealed to the Review Board or the full Commission.

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### **FAMILY RADIO SERVICE REPLIES**

Manufacturers Want to Move Ahead with New Service

Reply comments are now in at the FCC in docket WT 95-102, the Family Radio Service (FRS) FM-CB NPRM. Family Radio would use 14 interstitial channels in the General Mobile Radio Service (GMRS) spectrum at 462 and 467 MHz (see W5Yl Report, October 15, 1995).

Unlike the GMRS, which uses a complex licensing scheme and a \$60 license fee, FRS, as a form of CB, would need no licensing and would have no access to repeaters.

The dispute between GMRS licensees and prospective manufacturers boils down to whether the half-watt FM-CBs will interfere with GMRS repeaters - more than 3,000 around the country - and whether the radios should be designed so as to prevent their being turned into repeaters, connected to amplifiers, or to packet radio TNCs.

These abuses could be prevented, GMRS licensees argue, by proper technical standards. But manufacturers believe these limitations will handicap the service. The FCC believes that the "FM capture effect" will protect GMRS from interference from unlicensed FRS consumers. Also at issue is whether FRS needs 14 channels. Each channel, the FCC said, could handle "many millions" of small communicating groups.

Here are excerpts from the reply comments:

"The record in this proceeding establishes that FRS will serve an unmet consumer demand for an inexpensive, high quality, short-range communications medium and thus will serve the public interest, convenience and necessity. By establishing this innovative and much-needed service, the Commission will further its mandate to 'generally encourage the larger and more effective use of radio in the public interest. ...

"In order to address PRSG's concern regarding the possibility that an FRS unit might be used as a repeater, Tandy respectfully suggests that the Commission prohibit the attachment of any device to an FRS unit that would enable it to function as a repeater." - Tandy Corporation/Radio Shack, Ft. Worth TX

"Many of GMRS' current licensees have migrated to this service specifically to escape the banalities and the vulgarities that have come to afflict CB. Many GMRS users are "refugees from eleven meters," and as this proceeding abundantly demonstrates, they will jealously guard this public resource from the misuse and abuse that have so notoriously come to characterize CB radio. ...

"Tandy and others continue in their mistaken belief that the 'FM capture effect' will benefit the station with the more powerful transmitter. The infamous 'FM capture effect' has nothing to do with transmitter power. Instead, it concerns the relative strengths of two or more signals at the receiver. At 460 MHz frequencies, the strongest received signal usually depends more on the relative heights of the transmit antennas, than on the actual transmitter output powers.

"By failing to recognize these two realities (that limiting power does not necessarily limit range, and that antenna height is more important than transmitter power), neither Tandy nor Cobra comprehend that FRS transmitters WILL significantly interfere with GMRS operations." - Personal Radio Steering Group (PRSG), Ann Arbor MI

"Several commenters tried to equate potential problems with FRS to past and present problems with the CB band. The main problem in the CB band is due to illegal excessive high power output and overmodulation. Neither of these problems is likely to occur with FRS because FM overmodulation is naturally limited by the modulator and the maximum output power is naturally limited by the power source, usually a battery. ...Cobra thinks there is a need for FRS and does not see any technical reasons that should discourage the FCC from going forward." - Cobra Electronics Corp., Chicago IL

"A simple computation exposes the NPRM's fantastic claim to 14 channels. Assuming, for argument's sake, that a 'small group' consists of four individuals and that 'many' is ten, just seven 462 MHz channels would serve a staggering 280,000,000 FRS users, that is, 106% of the U.S. population -- without any need to employ the 467 MHz channels so extensively disputed by commenters.

"The NPRM offers no reason for anything approaching such a stupendous number; yet its actual proposed complement of 14 FRS channels would double that huge amount. The NPRM's justification for the amount of spectrum to be allocated to FRS is non-existent." - Bennett Z. Kobb, KC5CW/KAE 8949, Arlington VA

"The diversity of potential markets [for FRS] as identified by manufacturers defines a strong niche market that offers the potential of hundreds of thousands of sales per year. There is no existing allocation of spectrum capable of handling such a tremendous influx of new users...We intend to offer product designed to serve the needs of parents keeping in touch with children as well as the outdoor sports enthusiasts. Our research tells us that these users alone represent a multi-million dollar market.

"PRSG argues that there should be an automatic timer on Family Radio Service transmitters limiting the duration of transmissions. Motorola's preliminary designs for potential FRS devices incorporate such a feature. ...Motorola would agree that a requirement for such a device would be an appropriate interference-reducing mechanism adding little cost to manufacturers."

- Motorola Inc., Schaumburg IL